

10/019894

531 Rec'd PCT/FT 28 DEC 2001

[10191/2142]

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s) : Ralf DUCKECK
Serial No. : To Be Assigned
Filed : Herewith
For : NAVIGATION METHOD AND DEVICE
Art Unit : To Be Assigned
Examiner : To Be Assigned

U.S. Patent and Trademark Office

Assistant Commissioner

for Patents

P.O. Box 2327

Arlington, VA 22202

PRELIMINARY AMENDMENT AND
37 C.F.R. § 1.125 SUBSTITUTE SPECIFICATION STATEMENT

SIR:

Please amend without prejudice the above-identified application before examination, as set forth below.

IN THE TITLE:

Please amend without prejudice the title to be:

--NAVIGATION METHOD AND DEVICE--.

IN THE SPECIFICATION AND ABSTRACT:

In accordance with 37 C.F.R. § 1.121(b)(3), a Substitute Specification (including the Abstract, but without claims) accompanies this response. It is respectfully requested that the Substitute Specification (including Abstract) be entered to replace the Specification of record.

IN THE CLAIMS:

Without prejudice, please cancel original claims 1 to 5, and please add new claims 6 to 10 as follows:

EV003628280

--6. (New) A navigation method for use in an on-board vehicle navigation system, the method comprising:

determining a route in the on-board vehicle navigation system in a vehicle;

transmitting information from a control center to the vehicle information system for use in providing optimized route planning, wherein only delta information representing required necessary deviations from a previously determined route for driving an alternative section of the route is transmitted from the control center to the vehicle navigation system.

7. (New) The method of claim 6, wherein the transmitting includes transmitting a current vehicle position, a destination of the route and a database version information to the control center to initiate optimized route planning.

8. (New) A method for use in controlling management of motor vehicle traffic flow, the method comprising:

transmitting information from a control center to an on-board vehicle navigation system in a vehicle to prevent a traffic problem; and

distributing the motor vehicle traffic flow among a plurality of detour segments in a controlled manner when there is a traffic problem and a plurality of feasible detour routes are available.

9. (New) A vehicle navigation system for use in a vehicle, the vehicle navigation system comprising:

a determining arrangement to determine a route in the vehicle navigation system;

a transmitting arrangement to transmit information from a control center to the vehicle information system for use in providing optimized route planning, wherein only delta information representing required necessary deviations from a previously determined route for driving an alternative section of the route is transmitted from the control center to the vehicle navigation system.

10. (New) A computer program for use in a traffic control center, comprising program code for executing a method for use in controlling management of motor vehicle traffic flow, the method including:

transmitting information from a control center to an on-board vehicle navigation system in a vehicle to prevent a traffic problem; and

distributing the motor vehicle traffic flow among a plurality of detour segments in a controlled manner when there is a traffic problem and a plurality of feasible detour routes are available.--.

Remarks

This Preliminary Amendment cancels without prejudice original claims 1 to 5 in the underlying PCT Application No. PCT/DE01/01587, and adds without prejudice new claims 6 to 10. The new claims conform the claims to U.S. Patent and Trademark Office rules and do not add new matter to the application.

In accordance with 37 C.F.R. § 1.121(b)(3), the Substitute Specification (including the Abstract, but without the claims) contains no new matter. The amendments reflected in the Substitute Specification (including Abstract) are to conform the Specification and Abstract to U.S. Patent and Trademark Office rules or to correct informalities. As required by 37 C.F.R. § 1.121(b)(3)(iii) and § 1.125(b)(2), a Marked Up Version Of The Substitute Specification comparing the Specification of record and the Substitute Specification also accompanies this Preliminary Amendment. In the Marked Up Version, underlining indicates added text and bracketing indicated deleted text. Approval and entry of the Substitute Specification (including Abstract) is respectfully requested.

The underlying PCT Application No. PCT/DE01/01587 includes an International Search Report, dated October 12, 2001. The Search Report includes a list of documents that were uncovered in the underlying PCT Application. A copy of the Search Report accompanies this Preliminary Amendment.

Applicant asserts that the subject matter of the present application is new, non-obvious, and useful. Prompt consideration and allowance of the application are respectfully requested.

Dated: 12/28/2001

Respectfully Submitted,

KENYON & KENYON

By:

Richard L. Mayer
(Reg. No. 22,490)

By P
Reg. No.
33, 885
Aaron C
(EOIRH)

One Broadway
New York, NY 10004
(212) 425-7200

CUSTOMER NO. 26646

435780

[10191/2142]

NAVIGATION METHOD AND DEVICE

Background Information

The present invention relates to a navigation method and a navigation device, in particular for use in vehicular
5 navigation systems.

Although it is applicable to any information systems having an information supply delivered from an external site or a control center to a plurality of information addressees, the present invention and the problem on which it is based are explained with respect to an on-board navigation system in an automobile and its connection to a central traffic control system.

15 On-board navigation systems today are composed essentially of the following subsystems: digital road map, computer module for calculating the trip route, position determining device, system administration, vehicle sensors for detecting vehicle movements, input and output units for operation and
20 navigation.

On-board navigation systems are capable of performing route planning according to various criteria autonomously and independently of a traffic control center after input of the
25 starting point and destination. Newer systems are also capable of processing digital traffic information such as that received over RDS-TMC or GSM and calculating detour routes. However, one disadvantage of such a highly developed on-board system is that the detour route for a traffic problem cannot
30 be determined by taking into account the traffic situation on this detour route or on other alternative routes. Furthermore, such systems are incapable of responding in advance to an

altered traffic situation in particular, which is being affected precisely by such rerouted traffic flows.

In addition, there are also known off-board navigation systems in which the intelligence is located in a control center where the route is calculated and transmitted to the vehicle with the help of beacons or wireless telephones (GSM). European Patent 814 448 describes a combined off-board/on-board navigation system. This system is capable of calculating a start-destination route itself like an on-board navigation system. However, to be able to recommend the best possible detour to the driver, taking into account current traffic problems, this publication proposes that the start-destination route be calculated in the terminal while requesting a route from the control center at the same time. The control center then calculates the route, taking into account the current traffic situation and the changed traffic conditions such as those which may occur due to special traffic guidance because of construction sites, etc. After the route is calculated in the control center, a "prediction" is made about how far the user has traveled in the meantime, and then the complete remaining route to his/her destination is transmitted to the terminal.

This method is called a hybrid method because it combines the procedures of on-board systems with those of off-board systems. However, it has the disadvantage that under some circumstances, very large volumes of data must be transmitted, which could result in a heavy load on the wireless network (GSM) when there are multiple users of the system and could also cause high transmission costs in the form of mobile wireless fees. The reason for this is that the complete remaining route beginning with the current location of the vehicle and ending with the programmed destination is transmitted over the mobile wireless network. In the worst case, such a heavy burden on the wireless network might result